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| 10/003,982 | 10/30/2001 | Robert Varney | | 6027 |
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| Legal Department Teradyne, Inc. 321 Harrison Avenue Boston, MA 02118 | | | DIMYAN, MAGID Y | |
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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/003,982
Filing Date: October 30, 2001
Appellant(s): VARNEY, ROBERT

MAILED
OCT 05 2004
GROUP 2800

Lance M. Kreisman
For Appellants

EXAMINER'S ANSWER

This is in response to the appeal brief filed 27 August 2004

(1) *Real Party in Interest*

A statement identifying the real party in interest as Teradyne Inc. is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is incorrect. A correct statement of the status of the claims is as follows: claims 24-27, 32-35 and 37-44 are pending and stand rejected in this application. Claims 1-23, 28-31, 36 and 45-54 have been cancelled.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is deficient because the Appellants use the Smith prior art in Appellants' Summary of Invention (see page 4 and Smith - figure 3 which is labeled "Prior Art"). In fact, the invention of Smith is not based on the prior art, as described in more detail below.

(6) Issues

The Appellant's statement of the issues in the brief is substantially correct. The changes are as follows: the Testa et al. prior art cited by the Examiner in the Office Actions is U.S. Patent No. 6,205,407 and not U.S. Patent No. 5,845,234 cited in the Applicants' Brief.

(7) Grouping of Claims

Appellant's brief includes a statement that Group I (claims 24 – 27 and 32 – 35) and Group II (claims 37 – 44) do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) ClaimsAppealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

| | | |
|-----------|--------------|---------|
| 6,185,707 | Smith et al. | 02-2001 |
| 6,205,407 | Testa et al. | 03-2001 |

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 24 - 27, 32 - 35 and 37 - 44 are rejected under 35 U.S.C. §103(a) as being unpatentable over Smith et al. ("Smith"), U.S. Patent No. 6,185,707, in view of Testa et al. ("Testa"), U.S. Patent No. 6,205,407. This rejection is set forth in a prior Office Action, mailed on 22 March 2004.

(11) Response to Argument

1. Claims 24 – 27, 32 – 35 and 37 – 44 are Rendered Obvious by Smith in view of Testa.

Appellants first argue that an important aspect of the Smith disclosure is the omission of any motivation to use the list of failed scan chains by itself, and state that Smith questions the value of generating failed scan chains without translating into X-Y physical coordinates. Furthermore, Appellants inserted a statement made by Smith in the "Background of the Invention" (column 2, lines 53 – 59) to conclude that Smith does "not provide any motivation to use the list of failed scan chain by itself". The Examiner maintains that a legitimate motivation for using the list of scan chains by itself can be found in the "Summary of the Invention", and not in the "Background of the Invention", as stated by the Appellants. Smith states in column 3, lines 45 – 53: "In accordance with the exemplary embodiment, this mapping is performed by taking the output from a functional tester and translating it from a list of failed scan chains into a list of suspected netlist nodes". Later on in the same paragraph (lines 59 – 62), Smith states: "A voluminous amount of high-quality data is therefore obtained in an entirely automated fashion, as opposed to obtaining a comparatively minuscule amount of lesser-quality data in an exceedingly laborious fashion". Thus, Smith provides a valid motivation for using scan chains alone.

The Appellants also argue that the teachings of Testa describe a way of generating conventional ATE patterns for testing integrated circuits, and has no relevance whatsoever in the field of design-for-test (DFT) automatic test equipment

(ATE). In fact, Testa does indeed teach a system and method for generating test (ATE) patterns for designs that include scan chains (i.e., DFT). See Testa - Abstract: lines 1 - 7, which cite the scan chain feature. Scan chains are used to help diagnose processing failures in an IC. Although Appellants correctly state that Testa does not teach failure diagnosis in his disclosure, Testa is not being relied upon for that teaching. Testa is being relied upon for the teaching of a **Graphical User Interface (GUI)** in an **Automatic Test Equipment (ATE)** environment. As for the reference of a Graphical User Interface (GUI), these are very well known in the art of Integrated Circuit (IC) design, and furthermore as stated above, Testa does describe the use of GUI's in ATE platforms and equipment in column 2, lines 34 – 48.

A) Group I Analysis

The Appellants also argue that the claims of Group I distinguish over a combination of Smith and Testa by reciting a graphical user interface generator for generating graphical representations of failed scan chains. However, Smith does disclose a form of a graphical user interface which shows failed scan chain locations. Nothing in Appellants' claim language limit the type of graphical representation permitted. Smith focuses on scan chains (col. 3, lines 45 – 48) and provides a graphical representation of the failed scan chains (see Smith – Figure 7). The graphical representation shows the failed scan chains as an **X Y display of suspected (i.e., failed)** list of nodes in the chain. So the graphical display of failed nodes translated from the failed scan chain data shown in Figure 7 reads on Appellants' claims. Further, Smith

teaches the limitation of generating failed scan data at col. 4, lines 47 – 61, where it states in part “The logical-to-physical translation of failure data is accomplished by a process referred to herein as Logic Map which allows the X, Y coordinates of failing netlist nodes to be generated”, and also “known methods may be used to post-process the functional test results and convert them into a list of failed signals suitable for input into a design diagnostic model”. Smith also suggests the use of GUI to enable visualization of scan data (see Smith – col. 6, lines 22 – 28), thereby providing the motivation to import the teachings of Testa. Since Smith in combination with Testa at least suggests the Appellants’ inventions, the Examiner maintains that the claims of Group I are unpatentable.

B) Group II Analysis

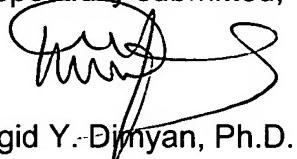
The Appellants again argue that Group II distinguish over a combination of Smith and Testa by reciting method steps that comprise the step **“graphically displaying a portion of the scan chains including the captured failure data”**. As stated above, Smith takes the **failed scan chain out** (col. 3, lines 46 – 53) and **translates it into a list of suspected (i.e., failed) netlist nodes**, which can also be displayed **graphically** (Smith – Fig. 7 or Testa’s GUI as described in the Abstract). As argued by the Examiner above in the Group I analysis, Smith indeed translates the **failed scan chain data first into netlist nodes** (X, Y coordinates), and then graphically displays the failed portion of the identified scan chain failure (X, Y coordinates) into a **graphical representation** as shown in Smith – Fig. 7.

Smith teaches the failed netlist nodes as another representation of the failed scan chains. Furthermore, Smith provides a motivation for using a GUI display for ATE data (Smith - col. 6, lines 24 – 28), and both Smith and Testa disclose the use of a GUI display in an ATE environment. Thus, Smith and Testa in combination suggest the Appellants' limitations in the claims of Group II.

Conclusion

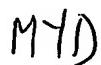
Having carefully considered all of Appellants' arguments, the Examiner maintains that the Smith and Testa references in combination at least suggest, if not disclose, the argued limitations of Appellants' invention. Accordingly, based on the foregoing, the Examiner respectfully requests the rejection of claims 24 – 27, 32 – 35 and 37 – 44 under U.S.C. § 103(a) as unpatentable over Smith in view of Testa be **affirmed**.

Respectfully submitted,



Magid Y. Djianyan, Ph.D.

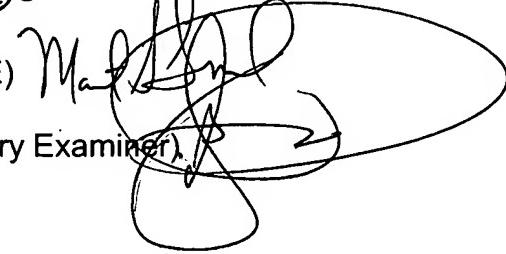
MYD



28 September 2004

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